

**PERIODIC SOLUTIONS OF THE EULER EQUATION ON  
SURFACE WITH CONSTANT CURVATURE**

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Classes of steady and periodic solutions are investigated for the incompressible Euler equation. Of particular interest is the stability of “discrete solutions” of the type of point-vortices on surfaces with constant curvature, on domains without boundaries. The study makes use of an infinite dimensional Hamiltonian formulation of the vorticity equation when the rotation of a planet is taken into account [see T.G. Shepherd, *Hamiltonian Dynamics*, Encyclopedia of Atmospheric Sciences, Academic Press, pp. 929–938, 2003; B. Khesin and G. Misiolek, *Euler equations on homogeneous spaces and Virasoro orbits*. Adv. Math. 176 (2003), no. 1, pp. 116–144].